

Remarks

Claims 1-31 are pending in this application. In the Office Action dated April 10, 2003, the Examiner rejected claims 14-29 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,132,306 to Trompower (Trompower). The Examiner rejected claims 1-8, 10-13, 30 and 31 under 35 U.S.C. § 103(a) as being unpatentable over Trompower in view of U.S. Patent No. 5,901,356 to Hudson (Hudson). The Examiner rejected claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Trompower and Hudson in further view of U.S. Patent No. 5,400,040 to Lane (Lane). Applicants respectfully disagree with the Examiner's rejections.

On the Office Action Summary, the drawings were indicated as being objected to by the Examiner. However, the Detailed Action contains no discussion of the drawings. The Applicants have not, therefore, amended the drawings in this paper. If the Examiner has objections to the drawings, the Examiner is respectfully requested to notify Applicants as to the nature of these objections so that appropriate action can be taken.

The § 102 Rejections

The Examiner rejected claims 14-29 as anticipated by Trompower. In order for Trompower to anticipate Applicants' invention, each limitation of a rejected claim must be taught by Trompower.

Claim 14, as amended, provides a method of wireless communication. Downlink information is transmitted in a substantially uniform coverage area around each of a plurality of access points. The downlink information is received at a subscriber unit. Uplink information is transmitted in a focused coverage area from the subscriber unit. The uplink information is received at one of the access points. Information is routed between the plurality of access points by receiving the information in a distribution point and sending the information to an access point in communication with the distribution point if the information is destined for a subscriber unit in communication with the access point. Otherwise the information is forwarded to another distribution point in communication with the distribution point.

Amended claim 14 includes limitations from claims 20 and 21, now canceled. The Examiner asserts that Trompower teaches Applicants' subscriber unit as follows: "see fig.

6A, col. 1, lines 55-60, col. 5, lines 40-46." The Examiner has not identified what Trompower discloses as Applicants' subscriber unit, access points, uplink information or downlink information. The first passage cited by the Examiner is reproduced as follows:

The shape of each cell is primarily determined by the type of antenna associated with a given base station. For instance, base stations which communicate with mobile terminals often have omnidirectional type antennas which provide for generally circular shaped cells and allow for a wide area of coverage.

This passage discloses a base station broadcasting in an omnidirectional pattern. No mention is made of how a subscriber unit responds. The second passage cited by the Examiner is reproduced as follows:

The present invention includes an apparatus and a process for enhancing the performance capabilities of a cellular communication system. The cellular communication system of the present invention includes a plurality of mobile terminals and a plurality of base stations. The base stations may be connected to a hardwired network backbone or serve as wireless base stations. Each base station can transmit and receive data in its respective cell.

In neither passage is there provided a teaching for a subscriber unit transmitting uplink information in a focused coverage area.

The Examiner's sole basis for rejecting claim 21 is "see fig. 2, 6a, col. 23, lines 27-62." Figures 2 and 6a illustrate a system having base stations and mobile terminals, but does not indicate how information is distributed. The cited passage is reproduced as follows:

In a multiple "hop" cellular communication system 200 having one or more wireless base stations responding to a mobile terminal's 230 "find router" packet, determining whether a given base station 210 is acceptable is slightly more complex. FIG. 4B depicts the steps taken by a mobile terminal when at least one wireless base station 215 responds to the mobile terminal's "find router" packet. As shown in FIG. 4B, steps 410B through 450B remain unchanged from corresponding steps 410 through 450 in the process described above dealing with the situation where all responding base stations are hardwired to the network. However, in this situation determining whether to register with a given base station, it is not enough that the mobile terminal is communicating at the fastest possible rate with any base station. What must be determined is at what speed the mobile terminal 230 must transmit information in order to register with a base

station 210, 215 which will provide the fastest "overall" transmission time to the network. When wireless base stations 215 are involved, the overall time it takes a mobile terminal 230 to access the network will include the time it takes to send a packet from the mobile terminal 230 to the wireless base station 215, processing (or queuing) time for the wireless base station 215, and the time it takes the wireless base station to send the packet to the network. For instance, if a mobile terminal 230 is communicating with a wireless base station 215 at the fastest possible rate, a further inquiry must be made to determine what speed the wireless base station 215 is communicating with the network. If the wireless base station 215 is communicating at a slow speed with the network, it may be more optimal for the mobile terminal 230 to reduce its own communicating parameters and attempt to directly communicate with a base station 210 hardwired to the network. If this is done, the time it takes to send the information to the wireless base station 215 plus the processing time needed by the wireless base station is eliminated.

This passage deals with establishing the fastest path from a mobile terminal either to a wired base station through a wireless base station or directly to the wired base station. This neither teaches nor suggests routing information between access points by receiving the information in a distribution point and sending the information to an access point in communication with the distribution point if the information is destined for a subscriber unit in communication with the access point and otherwise forwarding the information to another distribution point in communication with the distribution point. Claims 15-19 and 22-28 depend from claim 14, either directly or indirectly, and are therefore also patentable over Trompower.

Claim 16 provides that transmitting in a focused coverage area comprises transmitting from a directional antenna and that receiving the downlink information comprises receiving at the directional antenna. Claim 16 depends from claim 14, which provides that the focused transmission and downlink reception occur at a subscriber unit. The Examiner asserts that claims 16 is taught by Trompower, stating "see Fig. 10 directional antenna 290b, and col. 32, lines 32-47." Figure 10 "is a block diagram of a base station." Col. 8, ln. 3. Figure 10 does not illustrate any component comparable to Applicants' subscriber unit. If anything, Trompower's base stations correspond to Applicants' access points. The cited passage is reproduced as follows:

Each of the base stations includes an antenna 290a for transmitting and receiving packets via RF signals as discussed above. The cell area for each of the base stations in the exemplary embodiment is defined by a dashed line 1000 surrounding the respective base stations and corresponds to the area in which the base stations may conduct direct communication with a registered mobile terminal. Directional antennas 290b are also shown connected to each base station 210, 215 to create a more directed communication link between each wireless base station 215 and the backbone 260. Thus, the cell areas 1000 associated with each directional antenna 290b is more oblong in shape. As mentioned above, the cell areas 1000 relate to those regions in which the base stations can reliably transmit and receive signals. As is noted in FIG. 9, there are regions 1002-1004 where the cell areas of the base stations overlap each other.

The cited passage refers to base stations having directional antennas, not subscriber units.

Claim 17 further elaborates on claim 16, providing that the directional antenna is formed by selecting at least one of a plurality of antenna patches. Nowhere in Trompower is there even a suggestion to form a directional antenna from antenna patches.

Claim 26, depending from claim 14, provides for transmitting downlink information in a focused coverage area around each of a plurality of access points and receiving the downlink information at a subscriber unit. Uplink information is transmitted from a substantially uniform coverage area around the subscriber unit and received at one of the access points. Curiously, the Examiner rejected claim 26 with the same citation used for claim 14. Does the Examiner believe that the cited passages teach both focused and omnidirectional transmission from Trompower's base station to a mobile terminal? Does the Examiner believe that the cited passages also teach both focused and omnidirectional transmission from Trompower's mobile terminal to a base station? Applicants do not believe there is any such teaching.

Claim 29, as amended, provides a wireless communication system including a plurality of access points. Each access point transmits and receives information packets. Each information packet is transmitted over a substantially uniform coverage area around the access point. A network of distribution points routes information packets between the access points based upon a forwarding equivalency class for each access point. Each of a plurality of subscriber units transmits and receives information packets. Each subscriber unit transmits

information packets over a focused directional coverage area. Trompower neither teaches nor suggests routing information packets between the access points based upon a forwarding equivalency class for each access point.

The § 103 Rejections

The Examiner bases the § 103 rejections on a combination of Trompower and Hudson. Trompower discloses omnidirectional base stations communicating with mobile terminals. The only antennas disclosed for the mobile terminals are omnidirectional antennas. Hudson discloses base sites with directional antennas communicating with subscribers equipped with directional antennas. Applicants believe the Examiner is using hindsight gained from Applicants' invention to form a combination including Trompower's omnidirectional base stations and Hudson's directional subscribers.

Claim 1, as amended, provides a wireless communication system including a plurality of access points. Each access point has at least one omnidirectional antenna forming a substantially uniform coverage area around the access point. The system also includes a plurality of subscriber units. Each subscriber unit has at least one directional antenna forming a directional coverage area. The directional coverage area is selectable from amongst a plurality of directional coverage areas. None of the references cited by the Examiner teach or suggest a subscriber unit with selectable antenna coverage areas. Claims 2-13 depend from claim 1 and are therefore also patentable.

Claim 31, as amended, provides a method of communicating. A plurality of access points is established. Each access point has an omnidirectional antenna. A channel is established between one of the access points and one of a plurality of subscriber units by selecting one of a plurality of antenna directions in the subscriber unit. The selected antenna direction implements a directional antenna. Information packets are transmitted in a uniform coverage area around each access point. Information packets are received at the access point from the directional antenna. None of the references cited teach or suggest selecting one of a plurality of antenna directions in the subscriber unit.

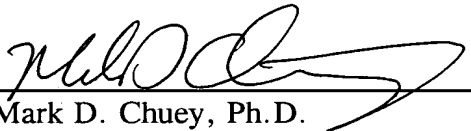
Claims 1-19, 22-29 and 31, as amended, remain in this application. Applicants believe these claims meet all substantive requirements for patentability. Reconsideration is

therefore respectfully requested. No additional fee is believed due by filing this amendment. However, any additional fee may be withdrawn from Deposit Account No. 21-0456 as specified in the Application Transmittal.

The Examiner is invited to contact the undersigned regarding any aspect of this case.

Respectfully submitted,

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